Amendments to the Claims:

Please amend claim 1 as set forth in the below listing of the claims. This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A computer-implemented method for generating a computer model of one or more teeth, comprising:

receiving as input a digital data set of meshes representing the teeth;

compressing the digital data set to generate a compressed digital data set, the compressing comprising:

_____selecting a curved coordinate system with mappings to and from a 3D space;

_____generating a function in the curved coordinate system to represent each tooth; and

rendering a graphical representation of the teeth using the compressed digital data set ~~computer model~~, wherein the rendering comprises rendering the teeth at a selected one of multiple orthodontic-specific viewing angles.

2. (Original) The method of claim 1, further comprising displaying the computer model of the teeth using the function and the coordinate system.

3. (Original) The method of claim 1, further comprising storing a compact coordinate system description and the function in a file representing a compressed version of the digital data set.

4. (Original) The method of claim 3, further comprising transmitting the file to a remote computer.

5. (Original) The method of claim 4, further comprising displaying the computer model of the teeth using the function at the remote computer.

6. (Original) The method of claim 4, wherein the file is transmitted over a network.

7. (Original) The method of claim 6, wherein the network is a wide area network.

8. (Original) The method of claim 6, wherein the network is the Internet.

9. (Previously Presented) The method of claim 1, wherein the coordinate system is based on equation:

$V = P(\phi, \theta) + R * \text{Direction}(\phi, \theta)$

where V is a corresponding point in three-dimensional (3D) space to (ϕ, θ, r), P and Direction are vector functions expressed in terms of ϕ and θ.

10. (Previously Presented) The method of claim 9, wherein the P and Direction functions are selected to minimize a deviation between the tooth model and a parametric surface specified by the curved coordinate system and the function.

11. (Original) The method of claim 9, wherein P and Direction are different for incisors and molars.

12. (Original) The method of claim 1, further comprising determining a radius value.

13. (Original) The method of claim 1, further comprising receiving an instruction from a human user to modify the graphical representation of the teeth and modifying the graphical representation in response to the instruction.

14. (Original) The method of claim 13, further comprising modifying the selected data set in response to the instruction from the user.

15. (Original) The method of claim 13, further comprising allowing a human user to select a tooth in the graphical representation and, in response, displaying information about the tooth.

16. (Canceled)

17. (Original) The method of claim 13, further comprising providing a user interface through which a human user can provide text-based comments after viewing the graphical representation of the teeth.

18. (Previously Presented) The method of claim 13, wherein rendering the graphical representation comprises downloading data to a remote computer at which a human viewer wishes to view the graphical representation.

19. (Previously Presented) The method of claim 1, further comprising delivering data representing positions of the teeth at selected points along treatment paths to an appliance fabrication system for use in fabricating at least one orthodontic appliance structured to move the teeth toward final positions.

20. (Original) The method of claim 1, further comprising detecting teeth collision using the curved coordinate system.

21. - 44. (Cancelled)